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FOREST DISEASE CONTROL IN CALIFORNIA

JULY 1, 1965 to JUNE 30, 1966

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NOV 3 1967

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U. S. Department of Agriculture
Forest Service
630 Sansome Street
San Francisco, California 94111

November 1966

WHITE PINE BLISTER RUST CONTROL

The Forest Service in California conducts disease control operations on all National Forests in the State; it assists other Federal Agencies, chiefly the National Park Service, in their disease control programs; and it cooperates with the State of California and private landowners in disease control work on non-Federal lands. In addition to such active involvement, the Forest Service provides leadership in disease control for all forest land managers in California. The following report is a product of the latter responsibility, providing interested foresters and forest land managers a summary of current developments in the National Forest and State-Cooperative BRC programs and highlighting other disease control work, particularly dwarfmistletoe control.

CONTRACT SURVEY

Following several years of development, contracting was begun through the State in the center of the State in 1954. The Forest Service, in 1954, contracted for 107 miles of survey line in the State.

WHITE PINE BLISTER RUST CONTROL

The status of control projects and accomplishments for Fiscal Year 1966 are given in Tables 1, 2 and 3. As noted below, Tables 1 and 2 do not yet fully reflect recent changes in control policy.

CONTROL POLICY REVISED

In the fall of 1965, pathologists of the Pacific Southwest Forest and Range Experiment Station, reviewing blister rust control policy for the central Sierra Nevada at the request of the Region, concluded that blister rust probably had encountered limiting environmental factors in that portion of the State and that ribes eradication could be discontinued without significant risk. Accordingly, control emphasis on the Eldorado and Stanislaus National Forests and on associated State and private lands was shifted from prevention to detection and local suppression in the following ways: general ribes eradication was discontinued as a preventative measure; rust detection activities were intensified; and direct suppression measures, chiefly canker cutting, were prescribed for local infection centers.

Yosemite National Park will continue preventative action by means of a minimal level ribes eradication program, principally in the cutover areas near Crane Flat, and will intensify its detection effort. Ribes suppression is now complete on nearly all of the Park's active control acreage and very little further work will be needed to maintain that condition.

These program changes are not yet fully reflected in Tables 1 and 2, since much of the reported work was performed during the summer of 1965. At present, fully active control programs are conducted by only six National Forests (Klamath, Shasta, Trinity, Lassen, Plumas, and Tahoe), Lassen Volcanic National Park, and the California Division of Forestry (the Whitehorse Unit).

CONTRACT SURVEY

Following several years of development, contracting was adopted throughout the State as the preferred method of making post-eradication ribes surveys. The Lassen Forest, a leader in this field, contracted for 167 miles of survey strip on 11,000 acres--80 percent

of its post checking program--for an average cost of \$25.05 per acre. The Shasta-Trinity, also a contract leader, reported substantially lower bid prices than in previous years. By mid-summer in 1966 about 20 contractors, including several consulting foresters, were listed as prequalified bidders for disease survey contracts.

THE WHITEHORSE UNIT

The California Division of Forestry, which has played a more active role in the State-Cooperative program in recent years, assumed full operational responsibility for the Whitehorse Unit which is located in Siskiyou and Modoc Counties. Ribes eradication there was done by crews from the Intermountain Conservation Camp, while the State employed seasonal technicians for ribes surveys. The Whitehorse project, which consists entirely of privately owned land within the Modoc National Forest, formerly was administered by the Lassen National Forest.

Outside of the Whitehorse Unit, crews from the Plum Creek and Magalia Conservation Camps eradicated ribes from 1,042 acres of private land within control units administered by the Lassen National Forest.

FUNGICIDE TESTING

Since the mid-1950's, various antibiotics and conventional fungicides have been suggested as possibly useful in the direct treatment of white pine blister rust. For the past 10 years the California Region has conducted a continuing program of field testing the more promising of these materials. A summary of that program was reported along with the results to date in the 1964 BRC Annual Report.

In 1966, final readings were made on all but the most recent tests and results remained largely negative. No new tests were established and no fungicides were used for blister rust control in California.

Further field testing of fungicides on sugar pine will be done as a cooperative program involving the Pacific Northwest Station, the Pacific Southwest Station, the California Region, and the Pacific Northwest Region, which will administer the program.

DWARFMISTLETOE CONTROL

Long unrecognized as a widespread and damaging forest pest, dwarfmistletoe is now receiving increasing attention from California foresters and land managers. The following paragraphs present highlights of the 1965-1966 fiscal year.

FOREST SERVICE

Dwarfmistletoe control as practiced by the Forest Service in the California Region consists of two distinct operations: presuppression evaluation to determine if particular infected stands qualify for treatment, and suppression of the disease in selected stands by cutting infected trees and branches.

Most of the suppression work is accomplished as a routine part of programmed timber sales, precommercial thinnings, and the development of recreation sites; while most of the evaluation and part of the suppression--initial suppression in developed recreation sites and rework on both timber and recreation lands--is performed as separate projects. The summary of accomplishments presented in Table 4 and discussed below refers to the work accomplished through the separate projects which were financed with funds appropriated especially for the control of forest diseases. Considerable additional work, mainly initial suppression, was accomplished through timber sales and precommercial thinnings, and was financed with funds provided for those activities. Some additional initial suppression was accomplished through programmed recreation developments.

During the year, dwarfmistletoe control projects were carried out on all but three of the National Forests in the Region. Table 4 summarizes the acreage accomplishments for those projects, but does not include entries for work under contract that was not completed by June 30, 1966.

Evaluation projects ranged in scope from informal observations, made in the course of other field jobs, to systematic examinations of proposed sale areas and recreation sites. Several procedures were employed, including the use of large-scale aerial photographs to delineate individual suppression units. Strip surveys, made to map infection centers, were a part of some evaluation projects. Table 4 entries represent most, but not all, of the evaluation work done in the Region.

Most suppression work on timber producing lands was restricted to well stocked seedling and sapling stands in which the dwarf-mistletoe infection was not severe, and where most of the dwarf-mistletoe could be removed by cutting rather than by pruning the infected trees. Full site preparation and planting was used as an alternative to dwarfmistletoe suppression in some severely infected seedling and sapling stands. In severely infected large-pole stands, site preparation and planting will be deferred to a later cutting cycle when the stands have reached merchantable size and can be harvested.

On recreation lands, priority was given to the treatment of potential sites to be developed in the next 10 years, but some work was also done in presently developed sites. Treatments ranged from thinning and pruning as practiced on timber lands in undeveloped sites, to intensive tree-by-tree sanitation in some developed sites.

NATIONAL PARK SERVICE

Kings Canyon National Park continued initial suppression work in a portion of the Cedar Grove area. Much of the work, involving the removal and treatment of overstory trees as well as thinning and pruning in the understory, was done by contractors.

The Cedar Grove project is the first dwarfmistletoe suppression effort by the Park Service in California, although similar control operations have been under way elsewhere for many years, particularly in the Southwest. All suppression units were in developed campgrounds or in areas to be developed for visitor use, concessionaire use, or as administrative sites.

CALIFORNIA DIVISION OF FORESTRY

Pilot operations aimed at determining the number of reworkings required in sugar pine and in white fir stands have been in progress at Mountain Home State Forest for several years. To date, the sugar pine project, involving about 200 acres, has received the initial treatment and one reworking following logging in 1959, while the 80-acre white fir project, which was logged in 1964, was worked initially in 1966.

ADMINISTRATIVE STUDIES

Field testing of herbicides for the treatment of unprunable dwarf-mistletoe plants was begun in the California Region in 1962. Preliminary results gave promise of operational application for certain treatment combinations, but indicated the need for further testing, which is currently underway.

FOMES ANNOSUS

Suppression work continued at the Institute of Forest Genetics where 23 newly infected trees were cut, a mile of permanent and semi-permanent trench was fumigated with carbon bisulphide, and an additional one-quarter acre of the arboretum was treated with methyl bromide.

Field testing of several fungicides that are used in the southeastern United States to prevent the spread of the disease to freshly cut stumps was begun in the fall of 1965 and is continuing.

TABLE 1

STATUS OF RIBES ERADICATION IN CALIFORNIA AS OF JUNE 30, 1966

Line	Land Status	Control Project	Control Area Acres	Worked Initially		Premaintenance Work Remaining		Maintenance	
				Acres	Percent	Acres Initial Work	Acres Rework	Acres	Percent
	A	B	C	D	E	F	G	H	I

STATE AND PRIVATE COOPERATIVE PROGRAM

1	PRIVATE	Klamath (Siskiyou County)	2,300	2,300	100	-	-	2,300	100
2		Shasta-Trinity (Siskiyou and Shasta Counties)	4,321	4,321	100	-	4,100	221	5
3		CDF (Whitehorse Unit) (Siskiyou and Modoc Counties)	8,489	7,925	85	564	7,008	917	11
4		Lassen (Tehama, Butte, Plumas, and Shasta Counties)	65,417	61,664	94	3,753	25,447	36,217	55
5		Plumas (Plumas, Butte, Yuba, and Sierra Counties)	22,974	21,102	92	1,872	20,782	320	1
6		Tahoe (Sierra, Nevada, and Placer Counties)	1,726	1,726	100	-	1,264	462	27
7		Eldorado (El Dorado, Placer, and Amador Counties)	22,786	20,981	99	1,805	16,775	4,206	18
8		Stanislaus (Calaveras and Tuolumne Counties)	8,112	7,796	96	316	3,615	4,181	52
9		Total Private Land	136,125	127,815	94	8,310	78,991	48,824	36
10	STATE	Latour State Forest	3,109	2,977	96	132	1,245	1,732	56
11		Magalia State Nursery	-	-	-	-	-	-	-
12		Rhodgett Exp. Forest - U.C.	940	940	100	-	940	-	-
13		Bliss-Emerald Bay State Parks	2,280	2,280	100	-	1,077	1,203	53
14		Calaveras Big Trees State Park	5,073	4,259	84	814	1,198	3,061	60
15		Total State Land	11,402	10,456	92	946	4,460	5,996	53
16	TOTAL STATE AND PRIVATE COOPERATIVE PROGRAM		147,527	138,271	94	9,256	83,451	54,820	37

NATIONAL FOREST PROGRAM

17	NATIONAL FOREST	Mendocino	-	-	-	-	-	-	-
18		Klamath	2,238	2,238	100	-	-	2,238	100
19		Shasta-Trinity	13,696	12,958	95	738	11,748	1,210	9
20		Lassen	39,356	28,703	73	10,653	19,659	9,044	23
21		Plumas	73,794	65,291	88	8,503	56,259	9,032	12
22		Tahoe	24,872	22,453	90	2,419	15,281	7,172	29
23		Eldorado	37,940	30,094	79	7,846	24,718	5,376	14
24		Stanislaus	43,965	42,693	97	1,272	17,236	25,457	58
25	TOTAL NATIONAL FOREST PROGRAM		235,861	204,430	87	31,431	144,901	59,529	25

NATIONAL PARK PROGRAM

26	NATIONAL PARK	Lassen Volcanic	27,313	24,951	91	2,362	1,231	23,720	87
27		Yosemite	83,952	81,665	97	2,287	6,051	75,614	90
28	TOTAL NATIONAL PARK PROGRAM		111,265	106,616	96	4,649	7,282	99,334	89

29	TOTAL ACTIVE CONTROL PROJECTS		494,653	449,317	91	45,336	235,634	213,683	43
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SELECTED SUGAR PINE STANDS ON WHICH RIBES ERADICATION IS DEFERRED

	Control Project	Acres Of Control Units By Land Status					
		Private	State	Total State & Private	National Forest	National Park	Grand Total
30	Mendocino	-	-	-	8,521	-	8,521
31	Sierra	14,422	-	14,422	49,578	-	64,000
32	Sequoia	-	-	-	4,974	-	4,974
33	Mountain Home State Forest	-	878	878	-	-	878
34	Sequoia-Kings Canyon National Parks	-	-	-	-	50,576	50,576

SUMMARY OF RIBES ERADICATION PROJECTS IN CALIFORNIA

35	TOTAL DEFERRED PROJECTS		14,422	878	15,300	63,073	50,576	128,949
36	TOTAL ACTIVE PROJECTS		136,125	11,402	147,527	235,861	111,265	494,653
37	TOTAL ACRES ALL CONTROL UNITS		150,547	12,280	162,827	298,934	161,841	623,602

TABLE 2
FISCAL YEAR 1966 ACCOMPLISHMENTS IN THE RIBES ERADICATION PROGRAM IN CALIFORNIA

Line	Land Status	Control Project	PREMAINTENANCE						MAINTENANCE WORK		
			Acres Surveyed	Acres Initial Work	Acres Reworked	Total Acres Worked	Thousands of Ribes Destroyed	To Main.: Acres	Acres Surveyed	Acres Worked	Thousands of Ribes Destroyed
			A	B	C	D	E	F	G	H	I

STATE AND PRIVATE COOPERATIVE PROGRAM

1	PRIVATE	Klamath (Siskiyou County)	-	-	-	-	-	-	-	440	9
2		Shasta-Trinity (Siskiyou and Shasta Counties)	1,464	-	44	44	2	-	-	-	-
3		CDF (Whitehorse Unit) (Siskiyou and Modoc Counties)	3,092	90	421	511	44	-	-	-	-
4		Lassen (Tehama, Butte, Plumas, and Shasta Counties)	9,110	286	1,979	2,265	230	+ 1,198	4,715	1,578	38
5		Plumas (Plumas, Butte, Yuba, and Sierra Counties)	10,091	1,050	1,188	2,238	448	- 80	-	-	-
6		Tahoe (Sierra, Nevada, and Placer Counties)	537	-	377	377	23	- 210	210	35	2
7		Eldorado (El Dorado, Placer, and Amador Counties)	1,081	-	885	885	78	-	-	-	-
8		Stanislaus (Calaveras and Tuolumne Counties)	687	-	-	-	-	-	152	7	1
9		Total Private (Subtotal)	26,062	1,426	4,894	6,320	825	908	5,077	2,060	50
10	STATE	Latour State Forest	43	-	43	43	8	-	-	-	-
11		Magalia State Nursery	-	-	-	-	-	-	-	-	-
12		Blodgett Exp. Forest - U.C.	100	-	-	-	-	-	356	36	1
13		Bliss-Emerald Bay State Parks	-	-	-	-	-	-	-	-	-
14		Calaveras Big Trees State Park	-	-	-	-	-	-	-	-	-
15		Total State (Subtotal)	143	-	43	43	8	-	356	36	1
16	TOTAL STATE AND PRIVATE COOPERATIVE PROGRAM		26,205	1,426	4,937	6,363	833	908	5,433	2,096	51

NATIONAL FOREST PROGRAM

17	NATIONAL FOREST	Mendocino	-	-	-	-	-	-	-	-	-
18		Klamath	-	-	-	-	-	-	-	-	-
19		Shasta-Trinity	4,395	-	684	684	15	+ 466	466	44	1
20		Lassen	7,736	870	688	1,558	106	-	812	58	2
21		Plumas	24,997	409	4,658	5,067	445	- 780	-	-	-
22		Tahoe	8,281	1,415	899	2,314	263	+ 773	1,634	528	4
23		Eldorado	1,543	-	346	346	36	-	-	-	-
24		Stanislaus	4,353	-	336	336	185	-	396	53	1
25	TOTAL NATIONAL FOREST PROGRAM		51,305	2,694	7,611	10,305	1,050	459	3,308	683	8

NATIONAL PARK PROGRAM

26	NATIONAL PARK	Lassen Volcanic	24,240	375	240	615	3	-	5,097	-	-
27		Yosemite	822	-	52	52	1	-	2,840	165	4
28	TOTAL NATIONAL PARK PROGRAM		25,062	375	292	667	4	-	7,937	165	4

29	TOTAL WORK ACCOMPLISHED UNDER ALL PROGRAMS		102,572	4,495	12,840	17,335	1,887	1,367	16,678	2,944	63
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TABLE 3
SUMMARY OF BRC CONTRACT COSTS
July 1, 1965 to June 30, 1966

FOREST	RIBES SURVEYS		RIBES ERADICATION	
	^{1/} MILES	COST PER MILE ^{2/}	ACRES	COST PER ACRE ^{2/}
Eldorado	-	\$ -	1,231	\$ 7.22
Lassen	167	25.36	3,952	8.64
Lassen Park	-	-	615	9.81
Plumas	26	42.00	6,257	13.50
Shasta-Trinity	93	30.01	710	6.69
Stanislaus	27	40.00	336	5.65
Tahoe	138 74 ^{3/}	29.90 50.00	2,510	10.32
TOTAL	525	\$32.42	15,611	\$10.51

^{1/} Cost per mile includes associated control lines, but miles includes only survey strips.

^{2/} Payments to contractors only.

^{3/} Wide-strip maintenance checking; all other ribes surveys reported here were for quarter-chain, post checks.

TABLE 4
DWARFMISTLETOE CONTROL IN CALIFORNIA
July 1, 1965 to June 30, 1966

FOREST	ACRES WORKED, TIMBER LANDS		ACRES WORKED, RECREATION LANDS	
	EVALUATION	SUPPRESSION ^{1/}	EVALUATION	SUPPRESSION ^{1/}
Angeles	-	-	165	-
Cleveland	-	-	72	25
Klamath	2,000	155	-	-
Lassen	8,000	-	-	-
Los Padres	-	-	617	33
Mendocino	5,875	15	-	-
Modoc	3,400	-	-	-
Plumas	7,800	97	6,446	-
San Bernardino	-	-	600	123
Sequoia	2,080	90	-	-
Shasta-Trinity	5,480	20	-	-
Sierra	-	30	-	-
Stanislaus	5,510	-	-	-
TOTAL	40,145	407	7,900	181

^{1/} Pest control projects only; additional suppression done in conjunction with other timber and recreation management projects.

